

# PATENT ABSTRACTS OF JAPAN

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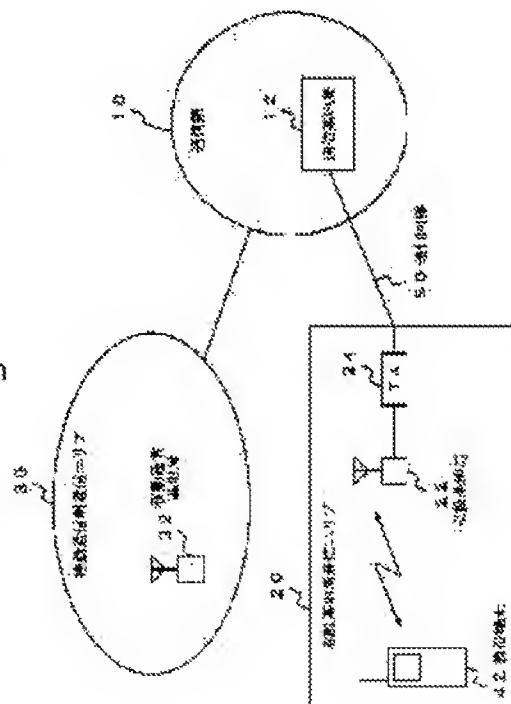
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## (54) CONNECTION SYSTEM FOR PORTABLE TERMINAL AND ITS CONNECTION SERVICE METHOD

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a connection system for portable terminal that realizes a worry-free and inexpensive charging communication without giving any adverse effect on surrounding devices and to provide its connection service method.

**SOLUTION:** In the portable terminal connection system where a portable terminal 42 of a user is connected to an external communication channel 50 via a private base station 22, the portable terminal 42 of the user makes communication with the private base station 22 by using a short distance wireless communication system. The portable terminal 42 of the user is provided with a communication function by a portable telephone channel in addition to the communication function by the short distance wireless communication system, and the private base station 22 is characterized in that it is provided with a means that inhibits the communication by the portable telephone channel and selects the communication by the short distance wireless communication system as its control and a means that inhibits a voice speech and selects only information data communication as its control.



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## CLAIMS

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[Claim(s)]

[Claim 1]A connection system, wherein said user's personal digital assistant and said base station communicate by a short-range-radio system in a connection system of a personal digital assistant which connects a user's personal digital assistant to an external communication line via a private base station.

[Claim 2]The connection system according to claim 1 having a means to compute a charge of private base station installation paid to an installer of said base station, corresponding to quantity and the number of times of communication performed via said base station.

[Claim 3]The connection system according to claim 1 or 2 setting said short-range-radio system to Bluetooth.

[Claim 4]A connection system of any one statement of claim 1 to claim 3 provided with a means of communication of information from said user's personal digital assistant side to said base station side.

[Claim 5]The connection system according to claim 4 communicating information from said user's personal digital assistant side to said base station side by making the couple 1 correspond to each aforementioned base station, and establishing and having a portal site which can be displayed on said user's personal digital assistant.

[Claim 6]An order of goods and service which said user offers to the installer side of said base station is mediated via said means of communication, By recording information on said order, paying a price for said article service to an installer of said base station, and charging and collecting a price for said article service to said user, The connection system according to claim 4 or 5 mediating dealings between said user and said base station installer.

[Claim 7]A connection system of any one statement of claim 1 to claim 6, wherein said user's personal digital assistant is provided with a communication function by a wireless circuit besides communication by said short-range-radio system.

[Claim 8]The connection system comprising according to claim 7:

Communication according [ said user's personal digital assistant ] to said short-range-radio system.

Both sides of communication by a wireless circuit, or a means to choose a communication method which a user uses when possible.

[Claim 9]The connection system according to claim 7 or 8, wherein said base station is provided with a means to change by controlling a method of the communication, to said personal digital assistant in a communications area of the base station concerned.

[Claim 10]The connection system according to claim 9 forbidding communication by a wireless circuit and changing by controlling said base station to said personal digital assistant in a communications area of the base station concerned to perform communication by said short-range-radio system.

[Claim 11]The connection system according to claim 9 or 10 forbidding a telephone call with a sound and changing by controlling said base station to said personal digital assistant in a communications area of the base station concerned to perform only information data communication.

[Claim 12]A connection system of any one statement of claim 1 to claim 11 making a communication line of said exterior into a wire circuit.

[Claim 13]A connection system of any one statement of claim 1 to claim 12 making a communication line of said exterior into a wireless circuit.

[Claim 14]In a connection service method of a personal digital assistant which connects with an external communication line via a private base station, a user's personal digital assistant said user's personal digital assistant and said base station, A connection service method computing and paying a charge of private base station installation paid to an installer of said base station corresponding to quantity and the number of times of communication which communicates by a short-range-radio system and is performed via said base station.

[Claim 15]The connection service method according to claim 14 setting said short-range-radio system to Bluetooth.

[Claim 16]The connection service method according to claim 14 or 15 mediating communication of information from said user to the installer side of said base station.

[Claim 17]The connection service method according to claim 16 making the couple 1 correspond to each aforementioned base station, establishing a portal site which can be displayed on said user's personal digital assistant, and communicating information from said user to the installer side of said base station via said portal site.

[Claim 18]An order of goods and service which said user offers to the installer side of said base station is mediated, By recording information on said order, paying a price for said article

service to an installer of said base station, and charging and collecting a price for said article service to said user, The connection service method according to claim 16 or 17 mediating dealings between said user and said base station installer.

[Claim 19]A connection service method of any one statement of claim 14 to claim 18 making a communication line of said exterior into a wire circuit, and paying said charge of private base station installation to an installer of said base station from an entrepreneur of the wire circuit concerned.

[Claim 20]A connection service method of any one statement of claim 14 to claim 18 making a communication line of said exterior into a wireless circuit, and paying said charge of private base station installation to an installer of said base station from an entrepreneur of the wireless circuit concerned.

[Claim 21]A base station communicating by a short-range-radio system between said user's personal digital assistants in a base station which connects a user's personal digital assistant to an external communication line.

[Claim 22]The base station according to claim 22 setting said short-range-radio system to Bluetooth.

[Claim 23]The base station according to claim 21 or 22 having a means to change by controlling a method of the communication, to said personal digital assistant in a communications area.

[Claim 24]The base station according to claim 23 forbidding communication by a powerful communication radio wave, and changing by controlling to said personal digital assistant in a communications area of the base station concerned to perform communication by said short-range-radio system.

[Claim 25]The base station according to claim 23 or 24 forbidding a telephone call with a sound and changing by controlling to said personal digital assistant in a communications area of the base station concerned to perform only information data communication.

[Claim 26]A base station of any one statement of claim 21 to claim 25 making a communication line of said exterior into a wire circuit.

[Claim 27]A base station of any one statement of claim 21 to claim 25 making a communication line of said exterior into a wireless circuit.

[Claim 28]A personal digital assistant characterized by communicating to an external communication line via a base station which communicates by a short-range-radio system.

[Claim 29]The personal digital assistant according to claim 28 setting said short-range-radio system to Bluetooth.

[Claim 30]A personal digital assistant receiving an order signal sent from said base station, and changing by controlling a communicative method based on said order signal.

[Claim 31]A personal digital assistant forbidding communication by a powerful communication

radio wave, and changing by controlling based on said order signal to perform communication by said short-range-radio system.

[Claim 32]A personal digital assistant forbidding a telephone call with a sound and changing by controlling based on said order signal to perform only information data communication.

[Claim 33]In a case where it is possible for a user to recognize a possible communication method of changing and choosing based on said order signal, and to choose two or more communication methods, A personal digital assistant displaying that with telex rate gold at the time of choosing each communication method, and receiving selection operation of a communication method by a user.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the connection system and connection method of the personal digital assistant using the communication base station (it is hereafter called a private base station) which individuals and companies other than a telecom company install especially, and a connection service method about communication by a personal digital assistant.

[0002]

[Description of the Prior Art]In recent years, telephone call, use of the Internet, etc. can be carried out by a cellular phone and personal digital assistants, such as PDA (Personal Digital Assistant), spreading, and using the wireless communications lines for a mobile terminal in these personal digital assistants. In particular, in the mobile communications in a cellular phone etc., since the communication radio wave is strong, there is the strong point in which communication is possible into the vehicle under movement and a building.

[0003]

[Problem(s) to be Solved by the Invention]On the other hand, telex rate gold of such mobile communications is a large sum from the case of a cable, In sending and receiving a strong electric wave in the radio, in order for there to be a risk of affecting the surrounding electric appliance and to avoid the influence of the medical equipment on the pacemaker of the heart, etc. especially, there is demerit of use of the cellular phone in a train etc. being forbidden.

[0004]The 1st purpose of this invention is to provide the connection system and connection service method of the personal digital assistant which realizes communication by the anxious cheap fee which solves the fault of the above-mentioned conventional technology and affects surrounding apparatus which is not.

[0005]The 2nd purpose of this invention installs the private base station which communicates

by the anxious weak electric wave which affects surrounding apparatus between personal digital assistants, and which is not, It is providing the connection system and connection service method of the personal digital assistant which connects a personal digital assistant to communication lines, such as a cable which communicates with a cheaper fee.

[0006]

[Means for Solving the Problem]In a connection system of a personal digital assistant with which a connection system of a personal digital assistant of this invention connects a user's personal digital assistant to an external communication line via a private base station in order to attain the above-mentioned purpose, said user's personal digital assistant and said base station communicate by a short-range-radio system.

[0007]A connection system of a personal digital assistant of this invention of claim 2 is provided with a means to compute a charge of private base station installation paid to an installer of said base station, corresponding to quantity and the number of times of communication performed via said base station.

[0008]A connection system of a personal digital assistant of this invention of claim 3 sets said short-range-radio system to Bluetooth.

[0009]A connection system of a personal digital assistant of this invention of claim 4 is provided with a means of communication of information from said user's personal digital assistant side to said base station side.

[0010]Information from said user's personal digital assistant side to said base station side is communicated by making a connection system of a personal digital assistant of this invention of claim 5 correspond to each aforementioned base station at the couple 1, and establishing and having a portal site which can be displayed on said user's personal digital assistant.

[0011]A connection system of a personal digital assistant of this invention of claim 6, An order of goods and service which said user offers to the installer side of said base station is mediated via said means of communication, Dealings between said user and said base station installer are mediated by recording information on said order, paying a price for said article service to an installer of said base station, and charging and collecting a price for said article service to said user.

[0012]As for a connection system of a personal digital assistant of this invention of claim 7, said user's personal digital assistant is provided with a communication function by a wireless circuit besides communication by said short-range-radio system.

[0013]A connection system of a personal digital assistant of this invention of claim 8 is provided with a means to choose a communication method which a user uses when possible, both sides of communication according [ said user's personal digital assistant ] to said short-range-radio system, and communication by a wireless circuit, or.

[0014]A connection system of a personal digital assistant of this invention of claim 9 is

provided with a means to change by said base station controlling a method of the communication to said personal digital assistant in a communications area of the base station concerned.

[0015]A connection system of a personal digital assistant of this invention of claim 10 forbids communication by a wireless circuit, and changes by controlling said base station to said personal digital assistant in a communications area of the base station concerned to perform communication by said short-range-radio system.

[0016]A connection system of a personal digital assistant of this invention of claim 11 forbids a telephone call with a sound, and changes by controlling said base station to said personal digital assistant in a communications area of the base station concerned to perform only information data communication.

[0017]A connection system of a personal digital assistant of this invention of claim 12 makes a communication line of said exterior a wire circuit.

[0018]A connection system of a personal digital assistant of this invention of claim 13 makes a communication line of said exterior a wireless circuit.

[0019]A connection service method of a personal digital assistant of this invention of claim 14, In a connection service method of a personal digital assistant which connects with an external communication line via a private base station, a user's personal digital assistant said user's personal digital assistant and said base station, It communicates by a short-range-radio system, and a charge of private base station installation paid to an installer of said base station is computed and paid corresponding to quantity and the number of times of communication performed via said base station.

[0020]A connection service method of a personal digital assistant of this invention of claim 15 sets said short-range-radio system to Bluetooth.

[0021]A connection service method of a personal digital assistant of this invention of claim 16 mediates communication of information from said user to the installer side of said base station.

[0022]A connection service method of a personal digital assistant of this invention of claim 17, The couple 1 is made to correspond to each aforementioned base station, a portal site which can be displayed on said user's personal digital assistant is established, and information from said user to the installer side of said base station is communicated via said portal site.

[0023]A connection service method of a personal digital assistant of this invention of claim 18, An order of goods and service which said user offers to the installer side of said base station is mediated, Dealings between said user and said base station installer are mediated by recording information on said order, paying a price for said article service to an installer of said base station, and charging and collecting a price for said article service to said user.

[0024]A connection service method of a personal digital assistant of this invention of claim 19



makes a communication line of said exterior a wire circuit, and pays said charge of private base station installation to an installer of said base station from an entrepreneur of the wire circuit concerned.

[0025]A connection service method of a personal digital assistant of this invention of claim 20 makes a communication line of said exterior a wireless circuit, and pays said charge of private base station installation to an installer of said base station from an entrepreneur of the wireless circuit concerned.

[0026]In a base station which connects a user's personal digital assistant to an external communication line, a base station of a personal digital assistant of this invention of claim 21 communicates by a short-range-radio system between said user's personal digital assistants.

[0027]A base station of a personal digital assistant of this invention of claim 22 sets said short-range-radio system to Bluetooth.

[0028]A base station of a personal digital assistant of this invention of claim 23 is provided with a means to change by controlling a method of the communication, to said personal digital assistant in a communications area.

[0029]A base station of a personal digital assistant of this invention of claim 24 forbids communication by a powerful communication radio wave, and changes by controlling to said personal digital assistant in a communications area of the base station concerned to perform communication by said short-range-radio system.

[0030]A base station of a personal digital assistant of this invention of claim 25 forbids a telephone call with a sound, and changes by controlling to said personal digital assistant in a communications area of the base station concerned to perform only information data communication.

[0031]A base station of a personal digital assistant of this invention of claim 26 makes a communication line of said exterior a wire circuit.

[0032]A base station of a personal digital assistant of this invention of claim 27 makes a communication line of said exterior a wireless circuit.

[0033]A personal digital assistant of a personal digital assistant of this invention of claim 28 communicates to an external communication line via a base station which communicates by a short-range-radio system.

[0034]A personal digital assistant of a personal digital assistant of this invention of claim 29 sets said short-range-radio system to Bluetooth.

[0035]A personal digital assistant of a personal digital assistant of this invention of claim 30 receives an order signal sent from said base station, and changes by controlling a communicative method based on said order signal.

[0036]A personal digital assistant of a personal digital assistant of this invention of claim 31 forbids communication by a powerful communication radio wave, and changes by controlling

based on said order signal to perform communication by said short-range-radio system.

[0037]A personal digital assistant of a personal digital assistant of this invention of claim 32 forbids a telephone call with a sound, and changes by controlling based on said order signal to perform only information data communication.

[0038]A personal digital assistant of a personal digital assistant of this invention of claim 33, In a case where it is possible for a user to recognize a possible communication method of changing and choosing based on said order signal, and to choose two or more communication methods, That is displayed with telex rate gold at the time of choosing each communication method, and selection operation of a communication method by a user is received.

[0039]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described in detail with reference to drawings.

[0040]Drawing 1 is a block diagram showing the composition of the connection system of the personal digital assistant by a 1st embodiment of this invention.

[0041]If drawing 1 is referred to, the connection system of the personal digital assistant of this embodiment will be provided with the private base station 22 which communicates by a weak electric wave between a user's personal digital assistants 42, and will be provided with the composition which the private base station 22 makes connect the personal digital assistant 42 to the communications network 10 with cheap telex rate gold, such as a cable.

[0042]It is connected to the communications network 10 which performs communication cheaper than telex rate gold of mobile communications, and between the personal digital assistants 42, by performing communication by a weak electric wave, the private base station 22 connects the personal digital assistant 42 to the communications network 10, and performs communication of an audio signal or a data signal. Other users install the private base station 22 in the place which communicates with the personal digital assistant 42 in a restaurant and a building, for example in a store.

[0043]The private base station 22 can use short-range-radio systems, such as Bluetooth, for short-distance communication by the weak electric wave performed between the personal digital assistants 42, for example. There is no fear of affecting surrounding apparatus according to the electric wave which telex rate gold is not charged by the external contractor, and is usually used for the communication in communication between the private base station 22 and the personal digital assistant 42 using a short-range-radio system being weak.

[0044]In the example of drawing 1, the private base station 22 is connected to the communication line 50 from the communication base station 12 of the communications network 10 via the terminal adopter 24.

[0045]The personal digital assistants 42 are Personal Digital Assistants, such as portable communication terminals, such as a cellular phone, and PDA, etc., for example.

[0046]The personal digital assistant 42 may be provided with the wireless communication function between the base stations 32 of mobile communications as not only in what communicates via the private base station 22 but a cellular phone etc. In this case, a user chooses and determines whether to connect the personal digital assistant 42 to the private base station 22, or connect with a mobile radio communication network with automatic or hand control.

[0047]This reports that the private base station 22 entered within limits which the electric wave of the private base station 22 reaches to the personal digital assistant 42, for example, when a user with the personal digital assistants 42, such as a cellular phone and PDA, enters in the private base station communications areas 20, such as a store, a restaurant, etc. in which the private base station 22 was installed. This notice executes based on the notifying method in the short-range-radio system between the private base station 22 and the personal digital assistant 42 (for example, command of Bluetooth, etc.).

[0048]If the notice from this private base station 22 is received, the personal digital assistant 42 will receive the operation from the user who specifies whether it determines automatically that subsequent communications will connect with the private base station 22, and they are connected to a mobile radio communication network, or it connects with the private base station 22, and will appoint a connection destination. Here, when it opts for connection with the private base station 22, communication is performed between the personal digital assistant 42 and the private base station 22.

[0049]Communication by the anxious cheap fee which affects surrounding apparatus with the connection system of the personal digital assistant of this embodiment as mentioned above and which is not is realized.

[0050]Drawing 2 is a figure for explaining the mutual relation of the contractor and user who manage the connection service of the personal digital assistant by this embodiment.

[0051]As shown in drawing 2, the user 41 can communicate with cheap telex rate gold by the carrier 11 by receiving offer of the connection service using the private base station 22 from the private base station installer 21.

[0052]In the connection service of the personal digital assistant by this embodiment, From the carrier 11 who receives connection of the communication from a user, the charge of private base station installation is paid to the private base station installer 21 according to quantity, the number of times, etc. of the communication performed using the private base station 22 as remuneration over installation of the private base station 22.

[0053]Since the communication line 50 is drawn from the carrier 11 and it connects with the private base station 22 in the private base station installer 21, the burden of connection fees may occur, but. Since a profit is acquired by paying a part of telex rate which the user paid to the carrier 11 to the private base station installer 21 as a charge of private base station

installation, such a burden is also eased and it is canceled again.

[0054]By, making into a fixed amount system the connection fees which the private base station installer 21 pays to the carrier 11 for example, and adopting the method made into the meter-rate system to which the charge of private base station installation is paid according to a user's used part by one side, The more there is much a user's use, the more, the charge of private base station installation increases, and even if the private base station installer 21 pays connection fees, it can obtain many profits.

[0055]Since the carrier 11 can provide the communications service of his company to ordinary users via the private base station 22 installed by the private base station installer 21, it has been connected with profits that the private base station 22 is installed. For this reason, if many private base station installers 21 are obtained by payment in the charge of private base station installation, the carrier 11 will also become that many users obtained and will be connected also with the increase in an income.

[0056]To the user using a connection service, the carrier 11 sets up telex rate gold comparatively high-priced (however, it is cheaper than telex rate gold of mobile communications) than usual telex rate gold, and even if he adopts the method which pays the charge of private base station installation within the limits of the difference, he can acquire the same effect.

[0057]The calculating method of the amount of this charge of private base station installation is computable by the method of computing based on a predetermined calculation method with reference to record of the quantity of the communication for using for the carrier 11 side at the time of calculation of the usual telephone rate, etc., the number of times, etc., for example.

[0058]The mobile communications contractor 31 and the carrier 11 of this embodiment may be the same contractor. That is, also in this case, by performing communication using the communication lines 50, such as a cable, the expense concerning communication is reduced, and a public radio wave resource is saved, and generating of a strong communication radio wave is prevented.

[0059]The connection service of the personal digital assistant of this embodiment serves as a subject for whom the carrier 11 provides a connection service, and can consider the method which makes a contract of the charge of private base station installation, etc., and is managed between each private base station installers 21. However, the method etc. which not the thing restricted to this method but the method which the private base station installer 21 side serves as a subject, and manages, the other carriers 11, and contractors other than private base station installer 21 manage mediating the contract about the private base station 22, the payment of the charge of private base station installation, etc. are possible similarly.

[0060]For example, the gestalt of the convenience store and supermarket of macrochiria, a railroad company, etc. becoming the private base station installer 21, concluding

simultaneously the contract of installing the private base station 22 in the inside of a shop and vehicles of its company, among two or more carriers 11, and managing the enterprise of a connection service is also possible.

[0061]Next, a 2nd embodiment of this invention is described.

[0062]Drawing 3 is a block diagram showing the composition of the connection system of the personal digital assistant by a 2nd embodiment of this invention, and is installing the possible portal site 13 of the connection from a user's personal digital assistant 42 in the connection system of the personal digital assistant of this embodiment.

[0063]The portal site 13 is a web server in the Internet, personal computer communications, etc. of the Internet or an I mode, and, for this reason, is provided with the web browser for displaying the web page of the portal site 13, etc. in the personal digital assistant 42, for example.

[0064]In this embodiment, the portal site 13 identifies the private base station 22 which mediates communication, and it has a function which notifies the contents etc. of the operation which the user performed to the portal site 13 to the private base station 22.

[0065]The portal site 13 by the method of indicating various kinds of scripts to CGI (Common Gateway Interface) and the web page to exhibit. The private base station 22 which mediates communication can be identified, a user's operation can be received, and the contents of the operation can be notified to the private base station 22 side.

[0066]The original page for each private base station of every which mediates communication for the page of the portal site 13 displayed on a user's personal digital assistant 42 similarly can be displayed automatically.

[0067]The method using an address which makes the network address of the portal site 13 correspond to the couple 1 for every private base station of the, and is different may be adopted.

[0068]In the web page which exhibits reception of the operation from a user in the portal site 13, for example, The check box and radio button for choosing the item displayed, Objects, such as text area for inputting a character, and a transmission button which transmits the contents inputted in the web page to the server side, Indicate using the script of a HTML sentence or others and a user displays this by the web browser of the personal digital assistant 42, and perform a predetermined input and it transmits, The portal site 13 can receive the transmitted data with the method of performing processing of predetermined [, such as a notice by the side of the private base station 22, ], using the function of CGI.

[0069]Thereby, in this embodiment, it can communicate easily between the user 41 and the private base station installer 21 via a connection system.

[0070]For example, if the case where it is the private base station installer 21 is explained to a restaurant as an example, the private base station installer 21 will register beforehand the web

page for directing a list and an order of the menu of a self-store first as a homepage of the portal site 13 in the case of using the private base station 22 concerned. Thereby, the user 41 who is a visitor of a restaurant can place an order with reference to the menu of a restaurant easily by accessing the portal site 13 via the private base station 22 from the personal digital assistant 42.

[0071]The portal site 13 notifies the menu ordered by the user to the private base station installer 21. As a notifying method of this order, the method of installing the special device for displaying and notifying an order content, and transmitting and displaying the data of an order content from the portal site 13 side to that device is possible in the kitchen of a restaurant, etc.

[0072]And the order processing through the portal site 13 is ended by providing the dish of the menu in which an order for a restaurant was placed to the user who placed an order.

[0073]The communication between the user and the private base station installer 21 through the portal site 13 of this embodiment, Since it can have a web page of original contents for each private base station of every and the communication can be performed, it is applicable a karaoke lounge, a department store, a hotel and other contractors, or besides a restaurant also like various kinds of order processings which can be set.

[0074]There is an example which mediates the payment of the goods in which a user receives offer from the private base station installer 21, or the price for service as other one example of this embodiment.

[0075]The agency of the payment of a price can perform financial institutions, such as the carrier 11 and other external credit card companies, as the agency organization.

[0076]In [ for example ] the portal site 13 as the method of agency of the payment of this price, If the notice of the purport that sale of the goods which the user ordered via the portal site 13, and offer of service were completed is received from the private base station installer 21, Information required for agency of the name of the product, its price, etc. is notified to an agency organization, and an agency organization pays the price to the private base station installer 21, and a user is asked for the price for opposite *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne., and payment is received.

[0077]As a way an agency organization pays the price to the private base station installer 21, the method etc. which are transferred to the bank account of the private base station installer 21, for example are possible, and the method which combines with the charge of private base station installation, and makes payment especially when an agency organization is the carrier 11 is also possible. It is good also as what deducts and pays brokerage on the occasion of the payment of a price.

[0078]As a way an agency organization receives the payment of a price from a user, Draw-down \*\*\*\*\* from a user's bank account, and the transfer to the bank account of the agency organization by a user, The method which charges the payment etc. which come to the store



at the window of an agency organization, the other methods with which a user pays a price in advance beforehand, etc. are possible, and the method which is combined with telex rate gold by a connection service etc., and is especially charged when an agency organization is the carrier 11 is also possible. It is good also as what adds and charges brokerage when charging a price.

[0079]the connection system of the personal digital assistant of this embodiment explained above -- the effect of a 1st embodiment -- in addition, the user can perform an order etc. to the store side easily from his own personal digital assistant, and since the store side can process reception of an order automatically, they are few salesclerks and can carry out visitor correspondence.

[0080]Next, a 3rd embodiment of this embodiment is described.

[0081]In personal digital assistants, such as the conventional cellular phone, in order to prevent the influence which it has on the surrounding medical equipment etc. in in the car, a hospital, etc. of a vehicle since the powerful electric wave is used for communication, communication by a personal digital assistant was restricted in many cases.

[0082]However, in the connection system of the personal digital assistant of this invention, safe communication by a personal digital assistant is realized, without affecting the surrounding electric appliance, in order to use a very weak electric wave for communication between the private base stations 22 so that it may be explained to the above-mentioned 1st and a 2nd embodiment.

[0083]The strength of the electric wave in the short-range-radio systems (Bluetooth etc.) used for communication between the personal digital assistant 42 of this invention and the private base station 22 has little influence which communication available distance is a very weak electric wave which is about 10m, and it has on medical equipment. PDC (Personal Digital Cellular) by which this is used for communication of the cellular phone in Japan, It is far weak even if compared with the strength of the electric wave of IMT-2000 (International Mobile Telecommunications 2000) which is a next-generation mobile communication system.

[0084][ in the possible area of communication by a weak electric wave ] in this embodiment, it aims at improving further the function of the safe communication by a personal digital assistant by preventing communication by a powerful electric wave automatically.

[0085]Drawing 4 is a figure for explaining the automatic control of the electric wave used for communication of this embodiment.

[0086]In this embodiment, the private base station 22 is sending the command of the purport that communication by a strong electric wave is forbidden, to the personal digital assistant 42 of the user in the private base station communications area 20. It is sent based on a notifying method [ in / in this command / the short-range-radio system between the private base station 22 and the personal digital assistant 42 ] (for example, command of Bluetooth, etc.).

[0087]If the personal digital assistant 42 goes into the places (for example, in the car [ of a vehicle ], etc.) where use of the personal digital assistant which is in the private base station communications area 20 is restricted, it will perform a change automatically by receiving the signal which forbids dispatch of the communication radio wave of a cellular phone so that it may communicate via the private base station 22. Thereby, henceforth, in the private base station communications area 20, the personal digital assistant 42 communicates using a weak electric wave between the private base stations 22, and dispatch of strong electric waves, such as PDC and IMT-2000, is prevented.

[0088]The change of the communication method of the personal digital assistant in this embodiment is good also as what not only the method by automatic control but a user not necessarily operates manually, and is changed. For example, when the personal digital assistant 42 enters in the private base station communications area 20, it reports that a communication method can be changed to a user, and urges performing communication by a short-range-radio system. In the notice of the purport that this communication method can be changed, it is good also as what displays telex rate gold by each of possible communications (for example, a radio telephone network, Bluetooth, etc.) of a user choosing on the display of a personal digital assistant. Thereby, the user can check cheap telex rate gold by being able to change a communication method, after checking telex rate gold by each communication method, and using the private base station 22 of this invention.

[0089]As explained above, in the connection system of the personal digital assistant of this embodiment. In addition to the effect of a 1st embodiment, by preventing communication by a powerful electric wave automatically at the specific places in a train and a hospital etc., the influence on medical equipment etc. is avoided and communication by a safer personal digital assistant is realized.

[0090]Next, a 4th embodiment of this invention is described.

[0091]In a 4th embodiment, like a 3rd embodiment, the communication from the personal digital assistant 42 is limited so that only data communications may be performed.

[0092]In this embodiment, the command of the purport that the private base station 22 forbids communication with a sound to the personal digital assistant 42 of the user in the private base station communications area 20, and only data communications are performed is sent (for example, command of Bluetooth, etc.).

[0093]At the place in which many persons of the inside of a train or others gather, in order to prevent the trouble to the surrounding people, the telephone call with a sound is restricted in many cases.

[0094]In the connection system of this embodiment, the telephone call with the sound of the personal digital assistant 42 in such a special place can be prevented like a 3rd embodiment.

[0095]Next, a 5th embodiment of this invention is described.



[0096]Although the private base station 22 explained the method which connects the personal digital assistant 22 to the communications networks 10, such as a cable, in a 1st embodiment, The connection system of this invention is not limited to this method, and connects with the mobile communications base station 32 which the personal digital assistants 42, such as a cellular phone, use in original communication in this embodiment.

[0097]In order that not the wired telephone line that can perform cheap communication but the personal digital assistant 42 may connect with the mobile communications base station 32 used in original communication in this embodiment, although the effect of reduction of telex rate gold in a 1st embodiment is not acquired, the effect of others, such as prevention of influence in the surrounding medical equipment by using short-range-radio systems (Bluetooth etc.), etc., is realized in a similar manner as it is.

[0098]Drawing 5 is a block diagram showing the composition of the connection system of the personal digital assistant by this embodiment.

[0099]In the connection system of this embodiment, although the communication by the short-range-radio system between the private base station 22a and a user's personal digital assistant 42 is the same as that of a 1st embodiment, it differs from a 1st embodiment in that the private base station 22a connects with the mobile communications base station 32 by a radio telephone network.

[0100][ in the train which is a private base station communications area in drawing 5 ], When communication by a short-range-radio system is performed between the private base stations 22a and the private base station 22a communicates with the mobile communications base station 32 from the antenna taken out outside the car, the personal digital assistant 42 and the mobile communications base station 32 have connected the personal digital assistant 42.

[0101]Drawing 6 is a figure for explaining the mutual relation of the contractor and user who manage the connection service of the personal digital assistant by this embodiment, and communicates instead of the carrier 11 in a 1st embodiment in this embodiment using the mobile communications contractor's 31 mobile communications circuit.

[0102]In this embodiment, although it communicates via a mobile communications circuit from the private base station 22a, the telex rate gold does not necessarily become more expensive than a wire communication line. Telex rate gold so that the mobile communications contractor 31 may set up telex rate gold of the fixed amount, for example to the private base station 22a, A communicative quantity and number of times are enough if telex rate gold of at most one or more fixed amounts is obtained, and if many communications are performed by the private base station 22a, even if it sets up the fee to communication of each of each user more cheaply, the mobile communications contractor 31 can get predetermined profits. That is, also in this embodiment using a mobile communications circuit, the fee collection of a user's telex rate gold can be more cheaply set up to the private base station 22a installed in the place with

many use.

[0103]In a 2nd, 3rd, 4th, and 5th embodiment of this invention explained above, the gestalt which chose some of these freely and combined them can be carried out similarly.

[0104]For example, drawing 7 is a figure for explaining the automatic control of the correspondence procedure in a 3rd embodiment of this invention, and the automatic control of the electric wave in the case of carrying out combining connection with the mobile communications base station 32 in a 5th embodiment.

[0105]In drawing 7, if the personal digital assistant 42 goes into the places (for example, in the car [ of a vehicle ], etc.) where use of the personal digital assistant which is in the private base station communications area 20 is restricted, By receiving the signal which forbids the communication radio wave of the cellular phone sent from the private base station 22a, a change is automatically performed so that it may communicate via the private base station 22a.

[0106]Thereby, in the private base station communications area 20, communication is henceforth performed using a weak electric wave between the personal digital assistant 42 and the private base station 22a, and communication by cellular-phone circuits, such as PDC and IMT-2000, is performed between the private base station 22a and the mobile communications base station 32.

[0107]Although a desirable embodiment and example were given above and this invention was explained, this invention is not necessarily limited to the above-mentioned embodiment and an example, can change within the limits of the technical idea variously, and can be carried out.

[0108]

[Effect of the Invention]According to the connection system of the personal digital assistant of this invention, the following effects are attained as explained above.

[0109]In the connection system of the personal digital assistant of the 1st this invention, It is not necessary to connect with the high mobile communications circuit of telex rate gold, and since the private base station installed in the interior of a room etc. can relay communication of personal digital assistants, such as a cellular phone and PDA, and can use cheap communication lines, such as a wire circuit, the burden of a user's communication cost is greatly mitigable.

[0110][ in the communications area of a private base station ] to the 2nd, Since the automatic control which forbids communication according communication by a personal digital assistant to a sound, and restricts only to data communications, and also changes a communication radio wave into the method using the very weak electric wave of a short-range-radio system becomes possible, The communication which affects the circumference can be prevented automatically, without troubling a user's time and effort.

[0111]A profit can be acquired by paying the usage fee of a private base station according to

quantity, the number of times, etc. of the communication performed to the 3rd to the installer which installs a private base station using the private base station concerned. Generally, in the installer of such a private base station, although the burden of the installation cost for installing a private base station, connection fees, etc. may be called for, the burden of such connection fees is eased by the profit by the charge of private base station installation, and it is canceled. Since installation of the private base station of this invention is promoted by the profit by the charge of private base station installation, thereby, the user of the connection system of the personal digital assistant of this invention can receive the connection service of the personal digital assistant of this invention at many places widely.

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[Translation done.]

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**TECHNICAL FIELD**

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[Field of the Invention]This invention relates to the connection system and connection method of the personal digital assistant using the communication base station (it is hereafter called a private base station) which individuals and companies other than a telecom company install especially, and a connection service method about communication by a personal digital assistant.

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**PRIOR ART**

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[Description of the Prior Art]In recent years, telephone call, use of the Internet, etc. can be carried out by a cellular phone and personal digital assistants, such as PDA (Personal Digital Assistant), spreading, and using the wireless communications lines for a mobile terminal in these personal digital assistants. In particular, in the mobile communications in a cellular phone etc., since the communication radio wave is strong, there is the strong point in which communication is possible into the vehicle under movement and a building.

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## EFFECT OF THE INVENTION

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[Effect of the Invention]According to the connection system of the personal digital assistant of this invention, the following effects are attained as explained above.

[0109]In the connection system of the personal digital assistant of the 1st this invention, It is not necessary to connect with the high mobile communications circuit of telex rate gold, and since the private base station installed in the interior of a room etc. can relay communication of personal digital assistants, such as a cellular phone and PDA, and can use cheap communication lines, such as a wire circuit, the burden of a user's communication cost is greatly mitigable.

[0110][ in the communications area of a private base station ] to the 2nd, Since the automatic control which forbids communication according communication by a personal digital assistant to a sound, and restricts only to data communications, and also changes a communication radio wave into the method using the very weak electric wave of a short-range-radio system becomes possible, The communication which affects the circumference can be prevented automatically, without troubling a user's time and effort.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention]On the other hand, telex rate gold of such mobile communications is a large sum from the case of a cable, In sending and receiving a strong electric wave in the radio, in order for there to be a risk of affecting the surrounding electric appliance and to avoid the influence of the medical equipment on the pacemaker of the heart, etc. especially, there is demerit of use of the cellular phone in a train etc. being forbidden.

[0004]The 1st purpose of this invention is to provide the connection system and connection service method of the personal digital assistant which realizes communication by the anxious cheap fee which solves the fault of the above-mentioned conventional technology and affects surrounding apparatus which is not.

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**MEANS**

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[Means for Solving the Problem]In a connection system of a personal digital assistant with which a connection system of a personal digital assistant of this invention connects a user's personal digital assistant to an external communication line via a private base station in order to attain the above-mentioned purpose, said user's personal digital assistant and said base station communicate by a short-range-radio system.

[0007]A connection system of a personal digital assistant of this invention of claim 2 is provided with a means to compute a charge of private base station installation paid to an installer of said base station, corresponding to quantity and the number of times of communication performed via said base station.

[0008]A connection system of a personal digital assistant of this invention of claim 3 sets said short-range-radio system to Bluetooth.

[0009]A connection system of a personal digital assistant of this invention of claim 4 is provided with a means of communication of information from said user's personal digital assistant side to said base station side.

[0010]Information from said user's personal digital assistant side to said base station side is communicated by making a connection system of a personal digital assistant of this invention of claim 5 correspond to each aforementioned base station at the couple 1, and establishing and having a portal site which can be displayed on said user's personal digital assistant.

[0011]A connection system of a personal digital assistant of this invention of claim 6, An order of goods and service which said user offers to the installer side of said base station is mediated via said means of communication, Dealings between said user and said base station installer are mediated by recording information on said order, paying a price for said article service to an installer of said base station, and charging and collecting a price for said article service to said user.

[0012]As for a connection system of a personal digital assistant of this invention of claim 7, said user's personal digital assistant is provided with a communication function by a wireless circuit besides communication by said short-range-radio system.



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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the composition of the connection system of the personal digital assistant by a 1st embodiment of this invention.

[Drawing 2]It is a figure for explaining the mutual relation of the contractor and user who manage the connection service of the personal digital assistant by a 1st embodiment of this invention.

[Drawing 3]It is a block diagram showing the composition of the connection system of the personal digital assistant by a 2nd embodiment of this invention.

[Drawing 4]It is a figure for explaining the automatic control of the electric wave used for communication of a 3rd embodiment of this invention.

[Drawing 5]It is a block diagram showing the composition of the connection system of the personal digital assistant by a 5th embodiment of this invention.

[Drawing 6]It is a figure for explaining the mutual relation of the contractor and user who manage the connection service of the personal digital assistant by a 5th embodiment of this invention.

[Drawing 7]It is a figure for explaining the automatic control of the electric wave used for communication of the embodiment of others of this invention.

[Description of Notations]

10 Communications network

11 Carrier

12 Communication base station

13 Portal site

20 Private base station communications area

21 Private base station installer

22 22a Private base station

24 Terminal adopter  
30 Mobile radio communication network communications area  
31 Mobile communications contractor  
32 Base station  
41 User  
42 Personal digital assistant  
50 Communication line

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[Translation done.]

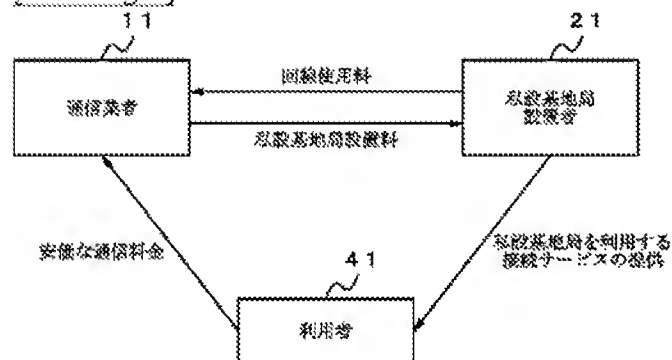
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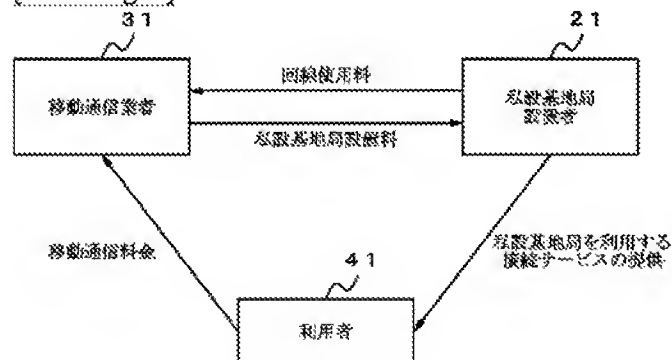
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## DRAWINGS

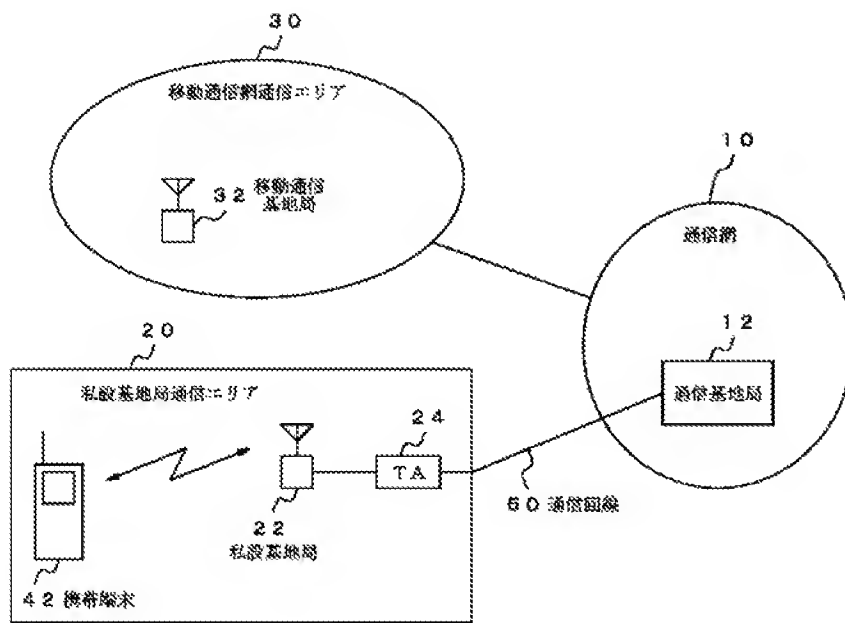
[Drawing 2]



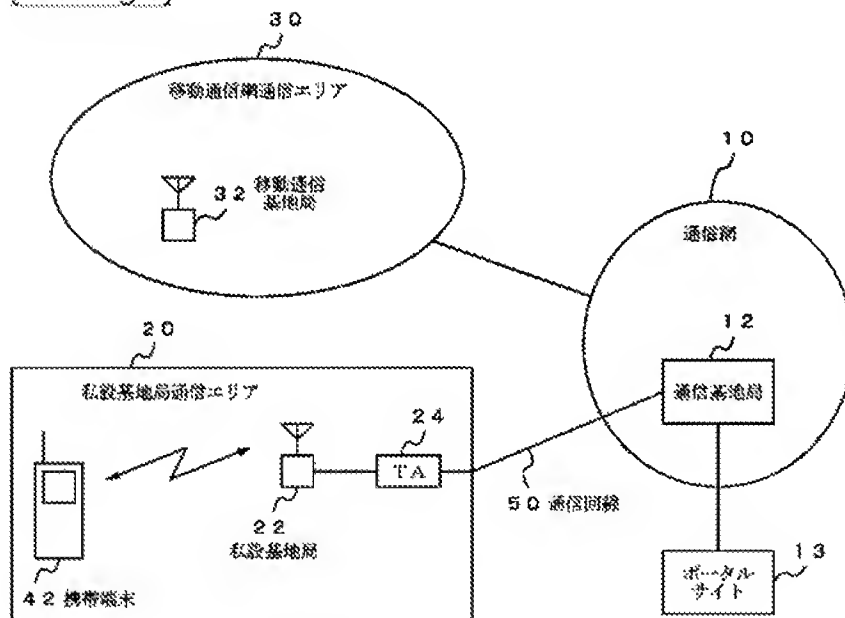
[Drawing 6]



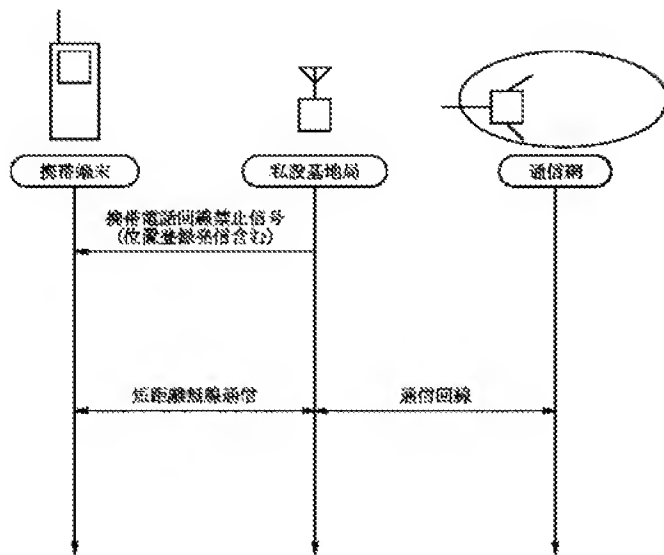
[Drawing 1]



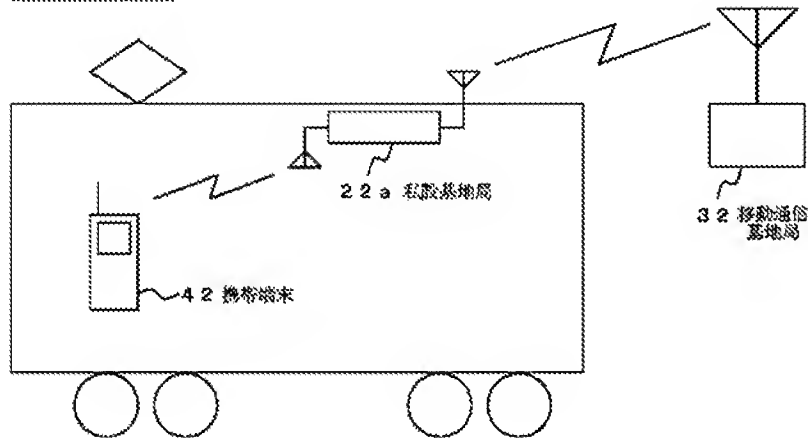
[Drawing 3]



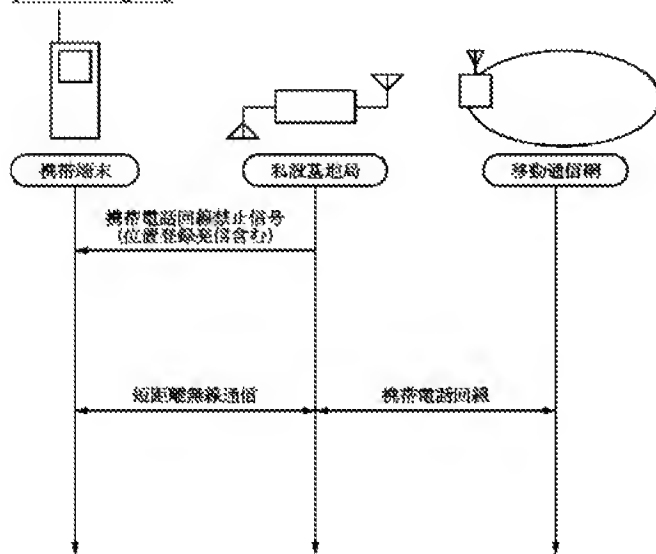
[Drawing 4]



[Drawing 5]



[Drawing 7]



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[Translation done.]